BEFORE THE

PUBLIC SERVICE COMMISSION OF WISCONSIN

Responses of the Energy Center of Wisconsin to the Questions Set Forth in the Commission Staff's June 3, 2008 Letter

Docket 05-UI-114

July 22, 2008

Note: The Energy Center of Wisconsin is an independent, nonprofit research organization. We are not an advocacy group. In keeping with our mission, we intervened in this proceeding for the purpose of providing technical, research-based information about incentives and disincentives for utilities to promote energy efficiency.

While we draw conclusions about certain specific issues as they relate to energy efficiency programs, we do not offer policy recommendations. Instead, we attempt to frame the issues in ways that makes the policy analysis clearer. Rather than responding to all the queries, we have provided in-depth responses to what we believe are the few key questions that define the broad scope of the investigation.

We hope that the Commission and the parties to this proceeding find our analysis to be helpful.

1. **Do the current rate structures of the electric and gas utilities in Wisconsin contain a net lost revenue and profit effect that is significant enough to discourage these utilities from developing and spending additional money on energy efficiency programs?**

   Response: The question refers to a profit effect associated with energy efficiency programs. It suggests that this profit effect is related to the issue of lost revenues.

   While lost revenues may be of concern, a potentially bigger financial issue is the impact of energy efficiency programs on the utility's rate base. The problem in that regard is one of lost assets, and the associated lost returns on those foregone investments. Lost revenue adjustment mechanisms, do not, and cannot, address this financial effect.

   We also note, however, that conditions in the utility industry are in flux. Proper incentive analysis must not be static but, rather, must anticipate potential changes in conditions. After presenting our basic argument, we test our analytical

conclusions by assessing the degree to which the fundamental assumptions might change.

As suggested by the question, our analysis focuses on the impact of potential additional energy efficiency program expenditures that Wisconsin utilities might undertake under their own volition. We assume that much of the energy efficiency efforts that the utilities fund, and which are implemented by an entity other than the utilities, continues to operate at its current level. We also assume that Wisconsin's standard two-year rate review process remains intact.

With this as a back drop, we further assume that if the utilities decide to augment the spending on energy efficiency by implementing their own programs, that they would recover these direct expenses in rates. So we do not address concerns about the inability of the utilities to recover energy efficiency programs costs. What is at issue is the effect of those efforts on the utilities' sales levels and their asset expansion paths.

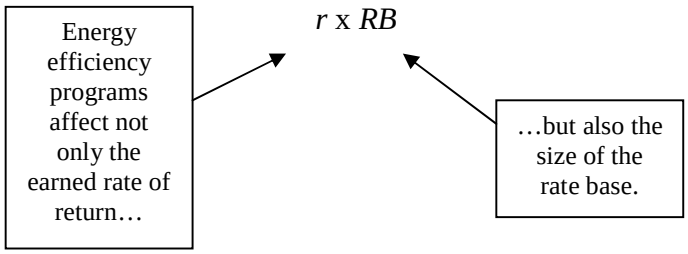
We can use the standard ratemaking formula in its simplest form to demonstrate our argument about lost revenues and lost assets:

$$RR = OE + r \times RB$$

where:

RR = revenue requirement
OE = operating expenses
r = rate of return
RB = rate base

When analyzing financial issues, we can ignore the operating expenses, since they do not affect investor returns. This leaves us with the essence of rate base regulation:



The schematic shows that energy efficiency programs affect both key financial variables.

Holding all else equal, the programs reduce the earned *r* to a level that is lower than it would be absent the programs. We refer to this as the lost revenue

problem. This is the impact that most people discuss, although we suggest that this is the smaller of the two effects.

Over the long-run, energy efficiency programs slow the rate of growth in *RB*. We refer to this as the lost assets problem. The rate base is the ultimate source of utility cash flow generation; under normal conditions, limiting its size will cause concern among utility executives. This is true even if the utility is made whole for any rate of return erosion that results from energy efficiency programs.

Returning to the lost revenue issue for a moment, we issue an important caveat. One can conclude that energy efficiency programs will reduce the utility's rate of return only if one holds all else equal. Such a *ceteris paribus* assumption may not be appropriate in this situation, especially in this state. The Commission will set the rates for a utility that promotes energy efficiency aggressively in a manner that is different from that it will apply for a utility that avoids energy efficiency programs. Hence, all else will not be equal in this respect.

For example, if a utility has a successful energy efficiency program, its sales growth rate will slow. When the Commission sets that utility's rates, it will likely consider that fact. To earn its authorized return on equity, this utility need only continue to grow at its slow, energy-efficiency-induced rate.

On the other hand, a utility that does not promote energy efficiency will tend to grow at a faster rate. Again, the Commission will likely consider this when it sets this utility's rates. Therefore, the utility will have to increase its sales at a relatively high rate, just to earn its authorized return.

Therefore, if the Commission makes a good faith effort to incorporate the impact of the energy efficiency programs when establishing test year sales forecasts, then the level of actual lost revenues is likely to be small, and can be attributed to forecast error. Conversely, while a sales promotion strategy may produce initial benefits, over time it merely sets the bar higher the next time the Commission sets the utility's rates. As a long-term strategy, sales promotion is therefore not likely to increase utility *rates of return* (measured as a percentage). It might increase *aggregate returns* (measured in dollars), however, which we will discuss in a moment.

We see confirmation that the lost revenue issue may not be of critical importance, at least not to all utilities. There is no common view on this issue among the group of Wisconsin's major investor-owned utilities. Wisconsin Power & Light and Wisconsin Public Service Corporation have current requests before the Commission to implement lost revenue adjustment mechanisms; the other investor-owned utilities appear to be less interested in doing so.

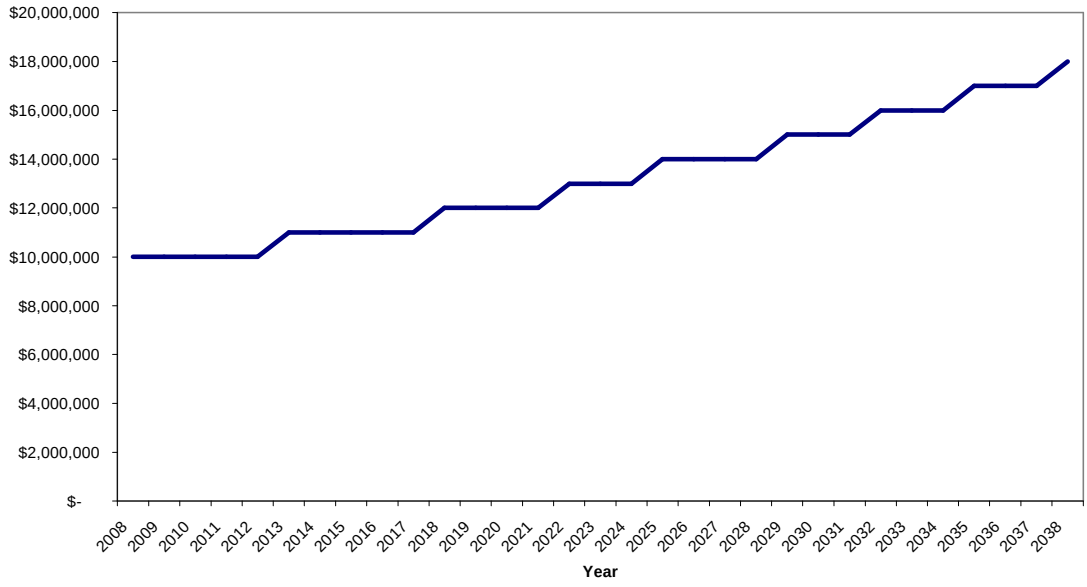
If lost revenues were a significant problem in all cases, then all of the major utilities would likely be requesting such treatment. The fact that some utilities see

no need for such an adjustment is telling. We think that the lost assets problem is much more important in terms of being a disincentive to promote energy efficiency.

We move now to that thornier issue, *i.e.*, the problem of lost assets. Here we switch our focus from rates of return to aggregate dollar returns, as we foreshadowed would occur based our earlier comments. A numerical example may be helpful in exploring this problem.

We start with a hypothetical utility with no energy efficiency programs. It has rate base assets of $10,000,000.[1] Its load grows at 2 percent per year. Each 10 percent cumulative increase in load requires that it invest $1,000,000 in new facilities. The utility's rate base would then expand as follows over time.

FIGURE 1
Utility Rate Base Expansion Path
No Energy Efficiency Programs



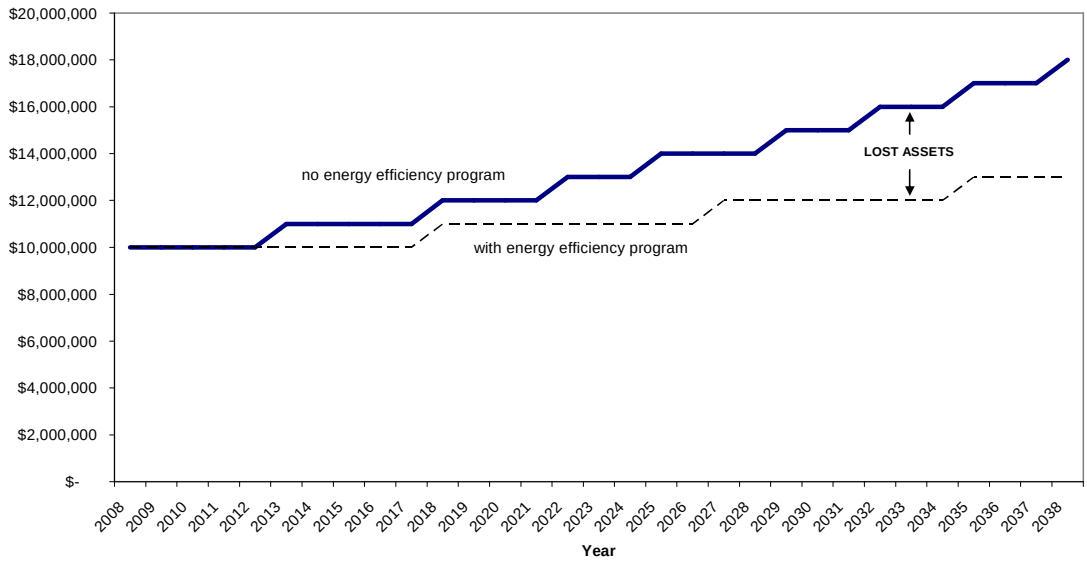
If we hold the rate of return constant, the aggregate return will grow in proportion to the rate base expansion. If we assume a 10 percent rate of return, the utility's annual return is $1,000,000 in 2008 (*i.e.*, $10,000,000 x 10%). At this rate of expansion, 30 years later its annual return will have grown to $1,800,000 (*i.e.*, $18,000,000 x 10%).

Now assume that the utility implements an energy efficiency program that lowers its sales growth rate to 1 percent per year. So doing will defer the need for the utility to add supply-side facilities. The following chart shows the impact on the

[1] For this simple analysis, we ignore depreciation effects. Incorporating depreciation would not change the general thrust of the argument.

utility's rate base, vis-à-vis the rate base that would be necessary if the utility did not implement the energy efficiency program.

FIGURE 2
Utility Rate Base Expansion Path
With and Without Energy Efficiency Programs



We see that, over time, energy efficiency programs create an ever-growing wedge between the rate base value with and without the programs. Since, in the aggregate, utility returns are a function of the size of the rate base, over time, the aggregate returns for a utility that promotes energy efficiency will be persistently less than they would be if it had not implemented efficiency programs. In this case, instead of annual returns of $1.8 million that would be expected in 2038 under the base case, if the utility implements energy efficiency programs, its annual expected return at that time would be only $1.3 million, which is about a 30 percent reduction in annual income.

Note that this analysis assumes that the rates of return in percentage terms are the same whether or not the utility promotes energy efficiency, which is the result we would expect if a lost revenue adjustment mechanism were in place. It is only the aggregate earnings that differ. So, do utilities care more about rates of return (which are the same in either scenario) or aggregate returns (which vary by scenario)?

As long as the Commission allows the utility to earn at least its cost of capital, then finance principles indicate that aggregate returns will be more important to the utility than the rate of return on assets.[2] We see this desire for growing asset bases and the associated increased return levels expressed explicitly by the

[2] See Brealey, Myers, and Allen, *Principles of Corporate Finance*, McGraw-Hill/Irwin (2006), pp. 85-103.

utilities. Consider the following statement from a Madison Gas and Electric annual report to shareholders:

> Over the next decade, we plan to increase MGE's assets by more than 80 percent with investments in our core business. Our shareholders earn a return on these assets.[3]

In a financial sense, a utility serves its shareholders by earning reasonable returns on a *growing* rate base. If energy efficiency limits utility growth, then under normal circumstances (*i.e.*, authorized returns at or above the cost of capital), promoting energy efficiency is antithetical to the fundamental process of utility investor wealth creation.[4] As a result, the lost assets associated with energy efficiency programs present a real financial problem for utilities and their investors. Note that this conclusion follows whether or not a lost revenue adjustment protects the utility's *rate* of return.

Note also that lost revenues are ephemeral, while lost asset impacts are permanent. The lost revenues created by a specific program exist only between rate cases. Once the utility files for rate relief, actual lost revenues are subsumed into the utility's historical load, which in turn drives its load forecast for the next test year.

Under traditional rate base regulation, there is no mechanism to address lost asset impacts. That is, the process is not designed to make the utilities whole *for investments that they did not make*, either in the short run or the long run.

Furthermore, a lost *revenue* adjustment cannot solve this lost *assets* problem. Such mechanisms true up earned revenues versus revenues projected in the most recent rate case. They do not address foregone assets.

Therefore, if the Commission deems it necessary to implement an adjustment mechanism to solve the lost revenue problem, it will address only the short-run, between-rate-case problem. The long-run lost assets problem will then continue to loom large. The upshot is clear: As long as utility executives expect that they can earn reasonable returns on future supply-side investments, even with a lost revenue adjustment mechanism in place, there will be a disincentive for the utility to procure demand-side, in lieu of supply-side, resources.

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[3] *Madison Gas and Electric 2001 Annual Report*, p. 4.

[4] To be complete, we should note that there have been periods in which growth was not beneficial to utility investors. In the 1970s and early 1980s, the stocks of utilities that grew the fastest were outperformed by those of their slower-growing counterparts. During that period, authorized returns were often set below the costs of capital. Under such circumstances, growth required the utilities to raise capital and a cost that exceeded the return they could earn on it. Like any process in which one gets less than he or she pays for an item, the greater the rate of activity or business expansion, the greater the loss of economic value. Such a condition, though, has been the exception in regulation.

There are two factors that could change this conclusion, one that involves Commission policy and one that flows from external events.

- Commission policy: Utilities could be allowed to earn returns when they make demand-side investments. This could be in the form of returns on utility energy efficiency expenditures, or bonus rate of return awards in general.
- Capital market conditions: Financial market circumstances could change in ways that make adding supply-side assets more difficult, and make energy efficiency programs necessities rather than luxuries.

As to the first item, if the Commission were to allow utilities to earn returns on demand-side expenditures, rather than expensing them, it would reduce the lost assets impact to some extent. Under such an approach, the utilities would be making *de facto* rate base additions, which would offset the impact of the supply-side additions that were deferred by the energy efficiency programs.

Designing and implementing a reasonable demand-side investment procedure is a challenge. It would be important to ensure that, if they are to earn a return, the demand-side resources are used and useful in a regulatory sense. That is, one must be confident that the measures are actually reducing energy or trimming peak loads.

In addition, the appropriate rate of return would need to be determined with care. If demand-side resources have a different risk profile than supply-side assets, the rate of return could be different for the two types of investments.

The preceding solution is one of fine tuning the ratemaking mechanism. The other situation that could change utility views on demand-side resources would be one that is foisted upon them from the outside.

It is clear that siting and building conventional utility assets is becoming a significant challenge. With increased concern about global warming, it is conceivable that utilities may have little choice but to procure greater amounts of energy efficiency resources to meet customer demand.

We see Wall Street investment banking firms entering the discussion on this point. In February 2008, four investment banks issued what they referred to as the Carbon Principles.[5] The bankers recommend that, given the inevitability of future carbon emission reduction mandates, utilities procure all cost-effective energy efficiency resources before attempting to build conventional carbon-emitting facilities. This begs a fundamental question: If Wall Street is suggesting that procuring energy efficiency resources is a necessary condition to obtaining

[5] http://carbonprinciples.org

financing for supply-side assets, do utilities really have a disincentive to promote energy efficiency?

In other words, perhaps the financially-attractive, ever-expanding, supply-side-asset rate base is not a real alternative in the modern utility world. If utilities must promote energy efficiency, then a scenario that assumes the utility can choose to procure only supply-side assets should not form the basis against which we assess the financial consequences of an efficiency-seeking strategy.

It is not clear how this issue will play out. The same investment bankers mentioned above also suggest that regulators remove barriers that keep utilities from procuring demand-side resources. The bankers, though, make no specific recommendations along those lines.

From a philosophical perspective, incentives are most appropriate when the Commission wants the utility to take some action that the utility is not compelled to take. The key question is whether, in a carbon-constrained world, energy efficiency programs are a luxury or a necessity for utilities? If the former is true, then incentives are more likely to be necessary. If the latter holds, utilities may be forced by circumstances to seek out energy efficiency opportunities more aggressively, even if existing regulatory structures are unchanged.

As stated at the outset, we make no recommendations as to specific Commission actions. We suggest that, if a disincentive for utilities to promote energy efficiency exists, it is more likely related to the lost *assets* problem than to lost *revenues*. Therefore, focusing exclusively on lost revenues in this proceeding would result in an incomplete analysis.

When addressing the lost asset problem, it is important that the Commission consider the degree to which utilities must procure energy efficiency resources, and the degree to which they have discretion in that regard. Actions borne of necessity need no incentives; those that are discretionary may require them.

2. **(Question for utilities) Is your utility likely to propose energy efficiency spending above current levels if any disincentive to do so is removed?**

   No response.

3. **If disincentives are removed and the utility elects to spend higher than current amounts on energy efficiency is it best for (a) the utility to develop and implement the programs; (b) should that be done by Focus on Energy; (c) should it be done through a combination of the utility and Focus on Energy; or (d) should it be done by some other entity?**

   Response: The interim report of Governor Doyle's Task Force on Global Warming recommends that the Commission "adopt and achieve aggressive goals

to reduce energy consumption that will in turn substantially reduce GHG emissions."[6] To achieve this aggressive policy result, it seems reasonable to be inclusive, not exclusive, in allowing entities that can deliver efficiency savings to do so.

This is a question of proper infrastructure. The Focus on Energy program is well established, and can continue to lead the charge in procuring demand-side resources. The utilities, though, can likely augment Focus on Energy's efforts to deliver additional savings. If there are other entities that can deliver even further savings, there seems to be no justification to restrict their activities.

Given the need to meet the aggressive energy efficiency targets, we suggest that the Commission continue to be open to the possibility of including multiple players in this regard. It seems as though the proper approach would be to fill gaps in energy efficiency delivery, while avoiding unnecessary duplication of effort.

4. **Do utilities currently have the resources to develop and implement additional energy efficiency programs?**

   No response.

5. **Should a decoupling mechanism consider only the effects of additional energy efficiency spending or should it also include the effects of other factors such as the economy and weather on actual vs. forecasted sales? If yes, please explain why.**

   No response.

6. **If you answered yes to Question #5, should it be necessary for a utility to propose additional energy efficiency spending before it could seek recovery of any lost revenues due to other factors?**

   No response.

7. **If a decoupling mechanism considers only the effects of additional energy efficiency spending, but due to weather, economic, or other factors the overall sales are equal to or greater than forecast, or if due to other factors the utility is either earning its authorized ROE or is within some range of its authorized return, should it still recover lost revenues?**

   No response.

[6] *A Wisconsin Strategy for Reducing Global Warming*, February 19, 2008, p. 14.

8. **Please provide what you believe to be the key components of a decoupling mechanism.**

   No response.

9. **Please provide examples of ratemaking mechanisms other than decoupling that could incent utilities to pursue additional energy efficiency spending at a reasonable cost to ratepayers.**

   Response: To be clear, decoupling is not an incentive mechanism. Rather, it neutralizes a disincentive. If the Commission wants to provide a positive incentive for utilities to promote energy efficiency, something other than decoupling needs to be implemented.

   The California Public Utilities Commission has implemented such an incentive system for the major investor-owned utilities that it regulates. The California approach reveals that incentive mechanisms do not produce windfalls to utility investors. Under that system, while the utilities can earn positive earnings adjustments if they reach certain levels of verified energy savings, they can also receive earnings reductions if they fail to meet minimum targets.

   The Energy Center is involved in the review of the earnings mechanism for the California utilities. We also are reviewing other incentive proposals, such as Duke Energy's Save-a-Watt program. Under this approach, the utility receives a payment equal to a specified percentage of the supply-side costs they avoid by installing and promoting energy efficiency measures.

   We understand that there is considerable concern among consumer groups about the Save-a-Watt program. While we have not conducted a thorough review of this approach, our initial assessment suggests that the adverse reaction may be due more to the fact that Duke requests that it be allowed to recover 90 percent of the avoided costs. If that percentage were reduced, the program might be more palatable to consumer advocates. We offer the Save-a-Watt program in its conceptual form as an example, with no prejudice as to the specific values assigned to key aspects of the program.

   We are in the process our completing a study on utility incentives, which will flesh out such issues in greater detail. We expect to have completed the study by early September. We would be happy to share our findings with the Commission and the parties in this proceeding at that time.

10. **Should all customer classes be included in any mechanism that is implemented to encourage utilities to promote additional energy efficiency spending? Why or why not?**

See joint response to questions 10 and 11 below. The following question makes reference to a response to question 9, but appears to be referring to the response to question 10.

11. If your answer to Question #9 (*sic*) is no, should additional energy efficiency programs only be designed to benefit only participating customer classes? Why or why not?

Joint Response to Questions 10 and 11: These questions are related and we find it to be more straightforward to address them simultaneously.

We see three possibilities along these lines: (1) an overarching decoupling or incentive-recovery mechanism is applied across the board to all classes; (2) specific decoupling or incentive-recovery mechanisms are implemented for each class; and (3) a decoupling or incentive-recovery mechanism is applied to some classes, but not to others.

Let us set forth the argument offered by some as to why certain customers should be excluded from a decoupling mechanism. We start with basic consumer economics. In simplest terms, customers' utility bills are a function of their usage and the rates they pay.

$$bill = energy\ usage \times rate$$

If a utility implements energy efficiency programs, and customers participate in one or more of those programs, their usage will decline. If the rate stays the same, their bills will definitely decline.

When a utility promotes energy efficiency, though, utility rates will not remain the same. Even if no decoupling mechanism is in place, the rates set in the next rate proceeding are likely to be somewhat higher than they would have been absent the program. With decoupling, the same result occurs, only with less lag time.

This is an important point to note. In a sense, even without a decoupling mechanism, utility revenues are already decoupled from sales to a noticeable extent. The ratemaking process is designed to produce rates that yield a total revenue requirement, and it neutralizes the sales effect fairly effectively. Holding all else equal, a utility with lower sales will in its next rate case have higher rates set than will a similarly situated utility with higher sales growth. Therefore, we observe that, in the short-run, the lower the utility's sales, the higher its rates will be.

This is especially true in Wisconsin with its two-year rate case cycle. The utility cannot deviate too far from its sales forecast before the Commission takes action

to eliminate the benefits of higher sales, or eliminate the shortfall from lower sales.

This leads to a somewhat counterintuitive result—energy efficiency programs tend to increase rates, at least in the short run. That is due to the fact that utility demand-side expenditures increase, while sales decrease. Both serve to drive up the per-unit rate. Over the long run, we expect that energy efficiency programs would have a more beneficial impact on rates, as the efficiency induced plant deferral discussed in our response to question 1 takes hold. Nevertheless, at the outset, we should expect rate increases when energy efficiency programs are implemented as fewer sales must generate the same amount of total dollar return on assets.

Back to our customers that participated in the energy efficiency programs. Say that after implementing energy efficiency measures their usage declined by 10 percent (*i.e.*, their usage is now 90 percent of what it was prior to participating) and their rates increased by 3 percent (*i.e.*, their rate is now 103 percent of the former rate) to reflect the impact of the energy efficiency program. This leads to the following bill impact:

Participant Bill Change

$$bill = 0.90 \times 1.03 = 0.93, \text{ or a } 7\% \text{ reduction}$$

This means that these customers who participate in the efficiency programs see a bill that is 93 percent of the prior bill, which is a 7 percent reduction.

Note, however, that customers that do not participate in the program, if they are not excluded from energy efficiency costs and adjustments, will end up with a higher bill as a result. Since they do not participate in the programs, their usage stays the same (*i.e.*, it stays at 100 percent of the former level), while their rate increases by 3 percent. The non-participants' bills therefore increase in proportion with the rate increase that was necessitated by to cover the higher costs and lower sales associated with the energy efficiency program:

Non-Participant Bill Change

$$bill = 1.00 \times 1.03 = 1.03, \text{ or a } 3\% \text{ increase}$$

This raises an equity issue. If certain customers have already implemented all cost-effective energy efficiency measures, should they be required to fund energy efficiency related costs? If they are so required, efficient customers will subsidize less-efficient users.

This analysis, however, assumes that some customers have installed all cost-effective energy efficiency measures. That is a point of great contention in the

utility industry. Some believe that utility prices are sufficient to prod customers to install all cost-effective energy efficiency measures. Other studies suggest that even customers that claim to be efficient can cost-effectively reduce their energy use by double-digit percentage levels.

The Commission will not likely reach a determination on this critical issue in this proceeding. Nevertheless, its decision as to whether to require some or all of the customers to bear the revenue responsibility implies an answer in that regard. Across-the-board responsibility for lost revenues implies that there are opportunities for everyone to become more efficient. Excluding certain customers from decoupling revenue responsibility implies that those customers are about as efficient as they can be.

This is where the program issue intersects with the revenue responsibility. It would appear to be inherently unfair to offer energy efficiency programs only to a limited set of customers, while allocating lost revenue responsibility to all customers. This suggests that if the utility offers no programs for certain customers, and those customers can be identified without great administrative cost, that those customers should be excluded from lost revenue recovery responsibility.

A more interesting issue arises if the utility offers energy efficiency programs to all of its customers, but certain groups or classes do not participate. Should the customers' failure to participate be taken as a sign that the customer is already efficient?

This is not an easy question to answer. One of the problems is that many customers define cost effectiveness differently from the metric employed by utilities. Customers tend to use the payback approach (*e.g.*, the measure is cost-effective if the energy savings pay for the installation cost within the first 2 years). Utilities tend to use net present value analysis (*e.g.*, if the discounted cash flows from the efficiency measure exceed the initial cost of the investment, then the measure is cost effective).

The difference in definition can create noticeably different views of energy efficiency. Some efficiency measures, such as building shell improvements, which can last 50 years or more, may have a 10 to 15 year payback, and still produce large net present value savings. So if customers pass up such shell improvements, are they efficient or inefficient in their energy usage? There is not one absolute answer to this question. As a result of this ambiguity in assessing cost effectiveness, any decision the Commission makes with respect to which customers should be responsible for lost revenue or incentive cost recovery will have an unavoidable degree of arbitrariness associated with it.

An intermediate course would be to have separate decoupling or incentive-recovery mechanisms for each rate class. Therefore, if one class of customers

tends on average to be more efficient than another class, the degree of cross-subsidization would be reduced by restricting the transfers of funds within the class. Nevertheless, this would not avoid the conceptual problem that efficient customers within a class would be subsidizing their less-efficient counterparts. There appears to be no simple way of eliminating that problem.

Therefore, we might expect that efficient customers would be opposed to lost revenue or incentive-recovery mechanisms because the major impact they would see is a rate increase, at least in the short run. They might benefit over the long run, however, if the efficiency programs are successful in limiting future rate increases.

12. Do you foresee controversy in determining the amount of reduced kWh sales caused by additional energy efficiency spending and the dollar margin on the reduced sales used to determine the under recovered amount to be included in rates? Why or why not?

No response.

13. Considering the lag time between the design and implementation of energy efficiency programs and that utilities file regularly for rate reviews, would the following alternative to decoupling be useful in removing disincentives to utilities promoting these programs? For programs that a utility is proposing prior to a rate case filing an estimate of reduced sales would be made and the test year sales forecast would be reduced accordingly. For programs developed and implemented during the utility's biennial period, a decoupling mechanism could be used to adjust for the impact of these programs until the next rate period (it would be likely that the lag time in implementing programs would make revenue adjustments relatively small).

No response.

14. Is revenue decoupling illegal retroactive ratemaking? Why or why not?

No response.

15. Are you aware of mechanisms other states use to incent additional energy efficiency on behalf of their utilities that you believe would be successful in Wisconsin? If so, please identify those states?

Response: See our response to question 9.

16. Does a decoupling mechanism represent a reduction in risk to the utility? If so, should that be reflected in the authorized return on equity?

Response: This is perhaps the most complex issue among those presented here. Risk assessment is highly counterintuitive. Furthermore, it is unclear how the Commission assesses risk when setting the return on equity, and which factors in addition to risk it considers in that determination.

We should note that decoupling mechanisms do not reduce risk; they shift it from the utility to the ratepayers. But, contrary to what many people believe, not all risks that a utility faces flow through to investor required returns, at least not to the stockholders' required return. Therefore, it is conceivable that if a decoupling mechanism is implemented, we could end up with an unenviable result—customer risk might increase noticeably, while utility shareholder risk might be reduced only slightly.

While such a conclusion flows directly from financial principles, the mechanism by which this occurs is not easy to follow. There is some additional offset to customers in that utility bondholders, unlike their equity-holding counterparts, are affected by all risks that the utility faces. So while required returns on equity might not decline much if decoupling were implemented, the cost of debt might decline more noticeably. This benefit would flow through to ratepayers over time.

Part of the research we are conducting now focuses on the risk question as it relates to decoupling. At this point we can offer some general conclusions. More thorough explanations of these points will be set forth in our paper.

Financial research suggests that for the required return on stocks, for which the return on equity is the relevant measure, only macroeconomic risks matter. Other risks, such as those related energy efficiency programs or the weather, affect stockholders' cash flow forecasts for the utility, and not their required returns. Investors can diversify away energy efficiency and weather risks by holding utility stocks in a broad-based portfolio, but they cannot diversify away macroeconomic-related risks.

Dr. Colin Blaydon, who appeared as a cost of capital expert on behalf of We Energies in several recent proceedings, explained in testimony that unless a factor is related to the macroeconomic cycle, then it does not affect the business risk of the firm:

> Businesses whose profits are more exposed to the booms and busts of the general economy have higher business risk than firms with less exposure. For example, the computer networking industry likely has more risk than the electric utility industry…Variability in utility financial results depend more on such factors as *regulatory decisions* and the weather (which affects the overall level of electricity demand). *Since these variables have little to do with the ups and downs of the economy, electric utilities have less*

> *business risk* than the more cyclical networking hardware industry.[7] (Emphasis added.)

What Dr. Blaydon is stating here is that simply because a regulatory action changes the volatility of the utility's earnings stream, up or down, is not justification to conclude that the business risk of the utility has changed. For that to occur, the volatility that is affected must be correlated with changes in macroeconomic conditions. All other risk factors, such as the weather or regulatory climate, or any risk not correlated with macroeconomic conditions, are not considered by stockholders to be true business risks when those investors determine their required returns.

This is true even though such non-macroeconomic risk factors, such as regulatory decisions, can have noticeable impacts on utility stock prices, and cause great concern for utility managers. It is not that the weather and regulatory climate are unimportant to stockholders. Rather, it is that those risk factors manifest themselves in the utility's stock price as changes in investors' cash flow forecasts, and not as changes in the required return. We agree with Dr. Blaydon's assessment of the principles of risk along these lines, as he is reiterating conventional finance principles in this regard.

The implications of this are interesting, albeit possibly somewhat confusing to those not familiar with the intricacies of corporate finance. This suggests that if the decoupling mechanism addresses impacts only of energy efficiency programs, and not those related to changes in the general economy, then the equity markets will see no reduction in the relevant risk of the utility when the mechanism is implemented.

Put another way, a utility that promoted energy efficiency, with no decoupling mechanism and with no consideration of lost revenue effects in the rate case sales forecast, probably would sell at a lower stock price than it would if it did not promote efficiency. But that would be due to the fact that the efficiency programs reduced the utility's cash flows, and not because they changed the risk profile to the shareholder.

Under these circumstances, removing the effect of energy efficiency programs via a decoupling mechanism that adjusts for those programs only would likely increase the shareholders' cash flow forecasts, while leaving their required return unchanged. The utility is worth more to investors, but it is just as risky to them as it was before the decoupling mechanism was implemented.

On the other hand, if the decoupling mechanism is broad-based, then the mechanism insulates the utility not only from the impacts of energy efficiency programs, but from other factors as well, including changes in macroeconomic conditions (*e.g.*, a recession). The fact that the utility's exposure to

[7] Testimony of Colin C. Blaydon, Port Washington Power the Future proceeding.

macroeconomic conditions has been reduced would be viewed by shareholders as a relevant risk reduction. Their required return would then decline to some extent. The adjustment, though, would be limited solely to the degree to which the mechanism protected the utility from economic business cycles, and again would not consider any insulation from impacts of weather or energy efficiency programs.

The analysis gets even more complex when one considers that the risk assessment for bondholders is completely different from the approach used by stockholders. Unlike stockholders, which can diversify away weather risks and energy efficiency risks as they relate to required returns, bondholders must reflect the potential consequences of all risk factors in their required returns, regardless as to whether those risk factors are related to changes in macroeconomic conditions. In other words, while only a handful of risks affect the required return on a utility's stock (those related to macroeconomic conditions), all the risk factors that a firm faces affect the required return on its bonds, including not only macroeconomic conditions, but weather and regulatory climate impacts, as well.

Why is this so? Holding bonds in portfolios is not nearly as effective as a risk reducing mechanism as is holding stocks in portfolios. This has to do with the asymmetric return profiles associated with bond returns, as compared to the more symmetric return distributions for stocks. Those interested in the details of this effect should refer to Aswath Damadoran, *Corporate Finance: Theory and Practice*, John Wiley & Sons, 2001, p. 175.

The upshot of this analysis is that decoupling will have a relatively larger impact on utility bondholders than it will on utility stockholders. Since the market, and not the Commission, sets bond returns, the Commission need do nothing to implement the bondholder impact.

For stockholders, the Commission must make this assessment because we cannot observe required returns on common stocks. The key point is that the only adjustment to the required return on equity due to implementation of a decoupling mechanism should be for the protection it offers from macroeconomic risks. No adjustments should be made for energy efficiency program effects, or for weather-related risks.

Finally, even if the Commission finds that the required return has declined because of decoupling, whether it adjusts the return on equity to reflect that finding is a policy call. The authorized return on equity reflects more than just the investors' required return. So, even if the Commission found that a decoupling mechanism reduced the stockholders' required return to some extent, it would not necessarily have to lower the return on equity.

17. What process should the Commission use to establish the parameters of ratemaking approaches that promote energy efficiency, i.e., should the

Commission approve utility-specific plans or establish guidelines for implementation in rate cases?

No response.

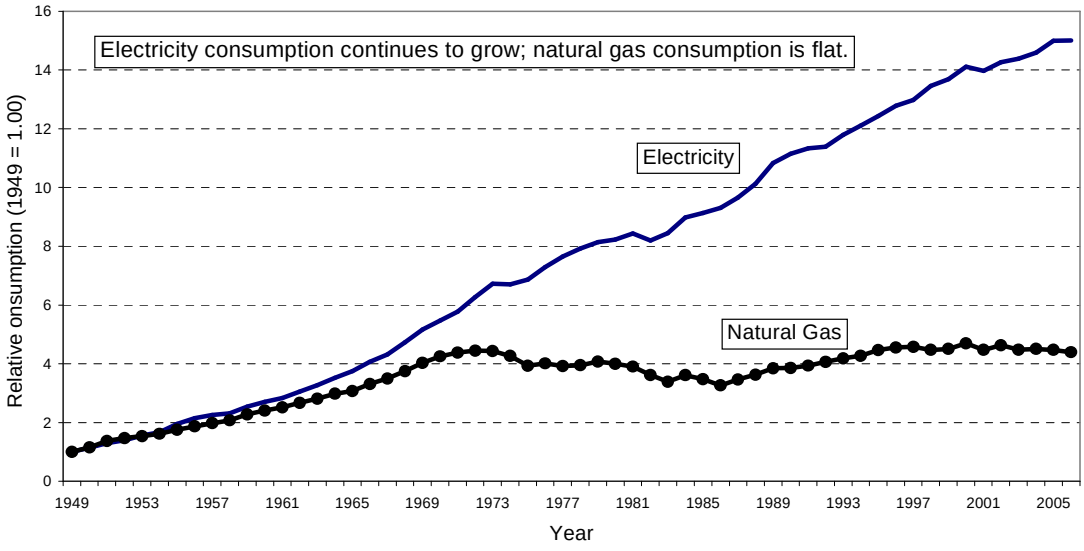
18. Are there important differences between gas and electric utilities to be considered when designing an incentive mechanism?

Response: Yes. We suggest that it is no accident that decoupling is applied more often to natural gas utilities, and less often to electric utilities. Recall the earlier discussion about the desire for utilities to grow so as to increase aggregate returns for their investors.

The electric utility industry is capital intensive. There is a noticeable uptrend in demand. Natural gas consumption today is about at the level it was in the early 1970s. Natural gas rates also are heavily influenced by variable costs, rather than fixed capital costs.

The differential growth rates of the industry are shown in the following figure.

FIGURE 3
Relative Growth in U.S. Energy Consumption
1949 - 2006 (1949 = 1.00)



This picture serves as a symbol for the fundamental differences in the two industries.

Combining energy efficiency promotion with a decoupling mechanism is an easier sell in the natural gas industry. Since the natural gas industry is not as

capital intensive as is the electric utility industry, the financial consequence of deferring plant investment is not as great as it is for the electric utility industry.

Also, natural gas utilities are more likely to see sales decline in any given year than are electric utilities, which tend to see sales increases. To the extent that decoupling helps the utility when sales decline (increases the earned return on equity), and hurts the utility when sales rise (lowers the earned return on equity), it is not surprising to find decoupling commonly applied in the no-growth natural gas industry, and less commonly in the expanding electric utility industry.

The Energy Center appreciates being afforded the opportunity to offer our views on these important issues. We look forward to continuing to participate in this investigation.